

<i>D. Blanfordiana</i> , Bens.	<i>D. labiosa</i> , W. Bl.
<i>D. pullula</i> , Bens.	<i>D. gibbosa</i> , W. Bl.
<i>D. semisculpta</i> , W. Bl.	

In the latter it is not so strongly marked externally; but, as in several others, there is a distinct internal rib.

In almost every species I can detect a slight constriction, even in the forms from Southern India (*Nicida*). Its being noticed in *Diancta* appears principally due to its occurring at the back of the shell; but it is far from constant in position. In some Indian forms it is on the penultimate whorl behind the lip, in others in the middle of the peristome.

The character of the shell in *Diplommatina* is exactly similar to that in *Alycæus*, and quite different from other Cyclophoridae. There is a complete absence of the coloured markings so characteristic of *Cyclophorus*, *Cyclotus*, *Pterocyclos*, and their allies; there is, as a rule, no epidermis, or only a very thin one; and the structure of the shell is different, more horny and less calcareous. The sculpture, too, is quite different in general from that of the Cyclophorinae.

I am therefore disposed to consider that *Diplommatina* and its various subgenera *Palaina*, *Diancta*, *Nicida*, &c., with *Opisthostoma*, ?*Clostophis*, and *Alycæus*, form a very natural subfamily of the Cyclophoridae distinguished by the peculiar structure of the shell and the presence of a constriction. This subfamily should be called *ALYCÆINÆ*.

I have not examined the lingual ribbon of *Diplommatina*; that of an *Alycæus* from Upper Burma (*A. Vulcani*, W. Bl.) is represented herewith. It is quite of the Cyclophoroid type; but the outermost laterals do not appear to be denticulated.



Lingual teeth of *Alycæus Vulcani*.

XLII.—*Descriptions of new Genera and Species of Tenebrionidæ from Australia and Tasmania.* By FRANCIS P. PASCOE, F.L.S. &c.

[Concluded from p. 296.]

NOTWITHSTANDING the following additions to the genus *Amarygmus**, there still remains a considerable number of species,

* Dalman, Anal. Entom. p. 60. M. Blessig separates the Australian species of the genus, under the name of *Chalcopterus*, on account of the mandibles of the latter being entire at the end, not bifid. (Hor. Soc. Ent. Ross. fasc. i. p. 103.)

some of which, although they would be called "evidently distinct," are apparently so nearly allied to others already published that they could not be satisfactorily differentiated without a larger suite of specimens than I possess. The variability of some of them (e. g. *A. purpureus*) has probably led to more than one being split up into so-called species. All here described are, I venture to think, either more or less specialized or are distinguished by very strong characters from those to which they may be considered most approximate.

Amarygmus celestis.

A. ovalis, niger, nitidus; elytris læte cyaneis, sat leviter seriatim punctatis, interstitiis impunctatis; tarsis tenuiter elongatis.

Hab. Brisbane.

Moderately oval, black, shining; the elytra bright indigo-blue, with slight violet reflections; head flat between the antennary tubers, separated from the clypeus by a deep broad groove; eyes approximate, entirely concealed by the prothorax in repose; antennæ rather slender, the last joint irregularly oblong-obovate; prothorax small, not very broad at the base or apex, the punctures almost obsolete; scutellum small, triangular; elytra moderately convex, seriate-punctate, the punctures rather fine, but well-marked, intervals of the striæ impunctate; body beneath and legs glossy black, with a brownish tinge; abdomen finely striated longitudinally; all the tarsi slender, elongate. Length $5\frac{1}{2}$ lines.

A handsome species, allied to *A. amethystinus*, Fab.*; the latter, however, has a dark-blue prothorax and red femora.

Amarygmus vinosus.

A. ovalis, viridis, nitidus; elytris purpureis in virides mutantibus, sat leviter seriatim punctatis, interstitiis subtiliter punctatis.

Hab. Sydney.

Moderately oval, green, shining, the elytra purple changing to green according to the light; head black, very slightly convex above the clypeus; eyes moderately approximate; antennæ gradually thicker outward, the last joint ovate; prothorax minutely and sparsely punctured, broad at the apex; scutellum small, triangular, black; elytra moderately convex, seriate-punctate, the punctures rather fine, but well marked, the intervals of the rows minutely punctured; body beneath and legs glossy brownish black, the abdomen finely striated longitudinally; anterior and intermediate tarsi shorter than in the last. Length $5\frac{1}{2}$ lines.

* Ent. Syst. ii. p. 40 (*Erotylus*).

In outline resembling the last, but differently coloured, with the prothorax shorter and much broader at the apex, the intervals of the rows on the elytra minutely punctured, &c.

Amarygmus exilis.

A. anguste oblongus, nitidus; prothorace trapezoidali, viridi-metallico; elytris elongatis, aureo-viridibus, in certo situ cupreo-resplendens, leviter seriatim punctatis.

Hab. Lachlan River.

Narrowly oblong, nitid, slightly convex; head green in front, blackish towards the clypeus; eyes remote; antennæ short, stout, ferruginous, the last six joints thicker and longer than the two preceding, the third only a little longer than the fourth; prothorax metallic green, trapezoidal, the sides nearly straight, the base not much broader than the apex; scutellum equilaterally triangular, black; elytra rather long, but much broader than the prothorax at the base, the sides nearly parallel, finely seriate-punctate, bright golden-green with copper reflections; body beneath light chestnut, glossy; legs dark chestnut; tarsi ferruginous. Length $3\frac{1}{4}$ lines.

A much narrower form than any of the preceding, with shorter antennæ.

Amarygmus indigaceus.

A. oblongus, subnitidus; prothorace nigro, angulis anticis acuminatis; elytris cyaneis, distincte seriatim punctatis; antennis tarsisque obscure testaceis.

Hab. Sydney.

Oblong, a little nitid; head black, rather coarsely punctured; eyes somewhat approximate; antennæ dull testaceous, the last four joints shorter and a little thicker than the others; prothorax rather narrow, shining, minutely punctured, the anterior angles produced and pointed; scutellum triangular, black; elytra broadest at the shoulders, very gradually narrower posteriorly, indigo-blue, rather finely seriate-punctate, the intervals of the striæ narrow; body beneath and legs chestnut-brown, slightly glossy; tarsi dull testaceous. Length $3\frac{1}{2}$ lines.

Allied to *A. picicornis* and *A. tarsalis*; the former, *inter alia*, has varying metallic elytra, and the latter a different prothorax and coarsely punctured elytra.

Amarygmus Cupido.

A. oblongo-ovalis, nitidus; prothorace nigro; elytris læte violaceis, certo situ cyaneo-resplendens, leviter seriatim punctatis.

Hab. Queensland.

Oblong-oval, nitid; head black; eyes scarcely approximate; antennæ dark ferruginous, the last five joints thicker and longer than the three preceding, but the third a little longer; prothorax glossy black, rather broad at the base, finely punctured; scutellum equilaterally triangular, black; elytra broadest, with the sides nearly parallel, along the middle third, rich violet, with lightish blue reflections, finely seriate-punctate; body beneath and legs chestnut-brown, glossy; tarsi ferruginous. Length $3\frac{1}{2}$ lines.

This is a beautiful and very distinct species, in size and form resembling the last, but with a nearly perfectly oval outline.

Amarygmus pusillus.

A. ovalis, niger, parum nitidus; elytris fere opacis, striato-punctatis, interstitiis impunctatis; subtus pedibusque castaneis.

Hab. Kiama.

Oval, black, a little nitid; head dull black; eyes not approximate; antennæ brown, gradually thicker from the third joint, the last five especially so; prothorax a little more nitid, well rounded at the sides, very minutely punctured; scutellum triangular, black; elytra nearly opaque, brownish black, strongly striate-punctate, the punctures oblong-linear, the intervals of the striæ broad, flattish, with a slight trace, in certain lights, of transverse linear impressions; body beneath and legs chestnut-brown, slightly glossy. Length $2\frac{3}{4}$ lines.

The sculpture of the elytra seems to approach in its character that of *A. rugosus*, Germ.; but the latter, *inter alia*, has rugose striæ, which is not the case in the species before us. The following has also striated elytra, but with different sculpture.

Amarygmus minutus.

A. suboblongo-ovalis; elytris fuseis, subnitidis, fortiter striato-punctatis, interstitiis punctulatis; subtus pedibusque pallide ferrugineis.

Hab. Sydney.

Slightly oblong-oval; head dark brown; eyes not approximate; antennæ pale ferruginous, the last five joints gradually thicker and very little longer than the three preceding; prothorax chestnut-brown, finely punctured, well rounded at the sides, broad at the base; scutellum triangular, brown; elytra brownish black, rather glossy, strongly striate-punctate, the punctures large, round, the intervals between the striæ finely punctured; body beneath and legs pale ferruginous. Length $2\frac{1}{4}$ lines.

Amarygmus obtusus.

A. oblongo-subovalis, niger, nitidus; elytris fusco-purpureis, haud versicoloribus, fortiter seriatim punctatis; tarsis subtus longe pilosis.

Hab. Queensland.

Oblong-suboval, black, shining, the elytra dark purple-brown without reflections; head slightly concave above the clypeus; eyes approximate; antennæ short, slender, the last four joints with a brownish pubescence, the last shortly ovate; prothorax short, gradually rounded from the base, broad and obtuse anteriorly, minutely punctured; scutellum triangular, black; elytra rather elongate, convex, the sides very slightly rounded, seriate-punctate, the punctures rather coarse, the intervals of the rows almost obsoletely punctured; body beneath and legs brownish black, subnitid; tarsi slender, with long hairs beneath. Length 7 lines.

The form and colour of this very distinct species will render it easily recognizable.

Amarygmus polychromus.

A. late ovalis, niger, nitidus; elytris cyaneis, vel purpureis, vel viridibus, coloribus variis resplendentibus, tenuissime seriatim punctatis; prothorace basi haud lato.

Hab. South Australia.

Broadly oval, black, shining; the elytra blue, purple, or green, with metallic reflections of various colours; head very slightly convex in front; eyes moderately approximate; antennæ rather slender, last joint elongate-ovate; prothorax black, with greenish reflections, not broad at the base, narrow at the apex, minutely and sparsely punctured; scutellum equilaterally triangular; elytra rather strongly convex, very finely seriate-punctate, the intervals of the rows broad and minutely punctured; body beneath, legs, and antennæ jet-black, glossy, abdomen finely punctured. Length 6-7 lines.

A very variable species as to the colour of its elytra, but readily distinguished, except from the next, by the fineness of its seriated punctures, which are scarcely to be discriminated from the interstitial punctures, together with its greater breadth and convexity. *A. Howittii* is a still broader species, with its dark-green colour varying principally from darker to lighter shades.

Amarygmus Howittii.

A. late ovalis, nitidus; prothorace nigro; elytris subtiliter seriatim

punctatis, interstitiis subtilissime punctatis, æneo et cupreo versicoloribus.

Hab. Victoria.

Broadly oval, smooth, shining; head glossy black; eyes not approximate; clypeus rather narrow; antennæ black, extending but little beyond the prothorax, thicker outwards, the last four joints shorter than the preceding, opaque, the rest glossy; prothorax small, broad at the base, the apex narrow, the anterior angles not produced, glossy black, finely and rather remotely punctured; scutellum small, triangular, black; elytra rather strongly convex, the sides nearly parallel or but very slightly rounded, very finely seriate-punctate, the punctures very close, the intervals of the rows wide and very minutely punctured, the colour dark greenish, shaded from brassy to copper according to the light; body beneath and legs jet-black and very glossy. Length 7 lines.

Dr. Howitt says of this very distinct species, "common everywhere;" but the two specimens he has sent me are the only ones I have seen. It approaches the following in outline, but is very different in colour and sculpture.

Amarygmus semiticus.

A. late obovatus, subnitidus, flavo-cupreus; elytris subtiliter seriatim punctatis, interstitiis vage et subtilissime punctatis; corpore subtus viridi-nigro.

Hab. Port Denison.

Broadly obovate, slightly nitid, colour above an unvarying yellowish copper; head black; eyes approximate; clypeus rather narrow; antennæ black, thicker outwards, fourth and succeeding joints of nearly equal length, the third not much longer than the fourth; prothorax much narrower at the apex, anterior angles somewhat produced, very minutely punctured; scutellum small, curvilinearly triangular, black; elytra broadest nearly at the base, then rounded, gradually narrower to the apex, finely seriate-punctate, punctures close, the intervals of the rows wide, sparsely and very minutely punctured; body beneath glossy greenish black; legs black. Length 7 lines.

Amarygmus semissis.

A. breviter ovalis, modice convexus, niger, nitidus; antennis art. 4 ultimis tarsisque fulvo-ferrugineis; elytris leviter striato-punctatis.

Hab. Kiama.

Shortly oval, black, nitid, moderately convex; head scarcely

concave in front; eyes moderately approximated; antennæ slender, the two basal joints glossy ferruginous, the last four pubescent, tawny ferruginous, opaque; prothorax small, not broad at the base, minutely punctured; scutellum triangular; elytra striate-punctate, the striæ shallow, the punctures rather fine, the interstices of the striæ very minutely and sparsely punctured; body beneath and legs glossy brownish black, tarsi tawny ferruginous. Length 4 lines.

This species is allied to the following, but, *inter alia*, has a broader and less elliptic outline, and is much less convex.

Amarygmus ellipsoides.

A. brevitelyptico-ovalis, sat fortiter convexus, fusco-niger, nitidus; elytris viridi-nigris, leviter striato-punctatis.

Hab. Queensland.

Shortly elliptic oval, rather strongly convex, brownish black, shining; the elytra greenish black, without reflections; head scarcely concave in front, a little depressed along the clypeal groove; eyes not approximate; antennæ glossy ferruginous, long, slender, the last joint narrowly oblong; prothorax small, rather narrow at the apex, very minutely punctured; scutellum triangular; elytra striate-punctate, the striæ shallow, the punctures rather fine, the interstices obsoletely punctured; body beneath and femora glossy brownish black; tarsi slender and, with the tibiæ, ferruginous. Length $4\frac{1}{2}$ lines.

Amarygmus suturalis.

A. brevitelyptico-ovalis, sat fortiter convexus, aterrimus, nitidus; elytris purpureo-cupreis in fusca mutantibus, sutura viridi, fortiter striato-punctatis.

Hab. Swan River.

Shortly oval, rather strongly convex, deep glossy black; the elytra purplish-copper changing to brown, the suture bright green; head flattish above the clypeus, the latter convex; eyes moderately approximate; antennæ stoutish, especially outwards, the last joint irregularly and broadly ovate; prothorax broad at the apex, rather narrow at the base, minutely punctured; scutellum convex, triangular; elytra striate-punctate, the striæ narrow and rather deep, the punctures small and nearly contiguous, the intervals of the striæ almost impunctate; body beneath and legs glossy black. Length 5 lines.

This and the two above are among the very few striated species of the genus; and of the striated species they are the most convex and elliptical in outline. Besides the difference of

colour, *A. suturalis* has the antennæ much stouter and the elytra much more deeply striate than *A. ellipsoides*.

Amarygmus torridus.

A. breviter ovalis, convexus, nitidus; prothorace fulvescenti-cupreo; elytris viridi-metallicis, fortiter seriatim punctatis; corpus subtus femoribusque castaneo-fuscis.

Hab. Cape York.

Shortly oval, convex, shining; head black; clypeus very broad; antennæ reddish brown, slightly thicker outwards, extending to half the length of the body, third joint longest, the rest of nearly equal length; prothorax yellowish copper, closely and finely punctured; scutellum equilaterally triangular, black; elytra about a quarter longer than broad, convex, coarsely seriate-punctate, all the punctures about equidistant from one another; body beneath and femora dark chestnut-brown, slightly nitid; tibiæ and tarsi reddish brown. Length $5\frac{1}{2}$ lines.

In form something like *A. convexus*, but shorter. An isolated species.

XLIII.—*Notulæ Lichenologicae*. No. XXVIII.

By the Rev. W. A. LEIGHTON, B.A., F.L.S.

IN the 'Flora' of Sept. 30, 1868, Dr. W. Nylander has some observations on *Cephalodia* which are worthy of attention.

These organs of Lichens were little known before Dr. Nylander pointed out their importance as furnishing a primary anatomical character in their gonimia. They occur only in thalli which have gonidia.

The kinds hitherto observed are:—

1. *Epigenous* cephalodia, on the upper surface of the thallus, variously protruded and of various forms, according to the genera and species in which they occur. They are the most frequent.

2. *Hypogenous* cephalodia, less frequent, on the under surface of the thallus, known only in *Peltidea venosa* and *Psoroma euphyllum*.

3. *Endogenous* or *Pyrenoid* cephalodia, which are immersed in the thallus and form a pyrenocarpoid protuberance (covered by the thallus) on the lower surface of the thallus. These are found in foliaceous Lichens, as in many *Stictici*, *Nephroma expallidum*, &c.